

Kevork Abazajian

Curriculum Vitae

PRESENT ADDRESS

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PERSONAL INFORMATION

Date of Birth: 11 June 1974
Citizenship: US

RESEARCH POSITIONS

2003 - PRESENT *Director's Postdoctoral Fellow*
 Theoretical Division, T-6 & T-8
 Theoretical Astrophysics and Elementary Particle and Field Theory
 Los Alamos National Laboratory

2001 - 2003 *Research Associate*
 NASA/Fermilab Theoretical Astrophysics Group
 Fermi National Accelerator Laboratory
 Associate Fellow
 Center for Cosmological Physics, University of Chicago

1997 - 2001 Graduate Research Assistant
 George M. Fuller, University of California, San Diego

EDUCATION

2001 Ph.D. Physics, University of California, San Diego
 Thesis: *Neutrino Cosmology and Astrophysics*
 Advisor: George M. Fuller

1997 M.S. Physics, University of California, San Diego

1996 B.S. Physics, University of Houston Honors College
 Magna Cum Laude
 Minors: Mathematics and Philosophy

ACADEMIC HONORS

Los Alamos Naltional Laboratory Director's Postdoctoral Fellow, 2003
NASA Graduate Student Research Program Fellowship, 1999-2001
Distinguished Senior Honors Thesis, University of Houston Honors College
Moody Scholar, University of Houston Honors College

PROFESSIONAL ACTIVITIES

Referee, Phys. Rev. Lett., Phys. Rev. D, Phys. Lett. B, J. of Cos. & Astropart. Phys.
Organizer, *Workshop on Neutrino News from the Lab and the Cosmos*, Fermilab, Oct. 2002
Organizer, Theoretical Astrophysics Group Seminars at Fermilab, 2002
Volunteer Lecturer, Fermilab High School Saturday Morning Physics Program, 2002-2003

TEACHING EXPERIENCE

UNIVERSITY OF CALIFORNIA, SAN DIEGO - Teaching Assistant
Physics 2D, Modern Physics (undergraduate), Winter 2001
Physics 212A, 212B, Quantum Mechanics (graduate), Fall 1998 - Winter 1999
Physics 5, Introductory Astronomy (undergraduate), Spring 1998
Physics 7, The Universe (undergraduate), Winter 1998
Physics 4B, Thermal Physics and Optics (undergraduate), Spring 1997
Physics 2CL, Introductory Physics Lab (undergraduate), Fall 1996 - Winter 1997
THE PRINCETON REVIEW - *Hyperlearning* Instructor for MCAT Physics, 2000-2001

PUBLICATIONS

1. **“The Nonlinear Cosmological Matter Power Spectrum with Massive Neutrinos”**
K. Abazajian, S. Dodelson, S. Habib, K. Heitmann and E. Switzer
in preparation
2. **“The Third Data Release of the Sloan Digital Sky Survey”**
SDSS Collaboration [K. Abazajian *et al.*]
submitted, Astron. J. [arXiv:astro-ph/0410239]
3. **“Cosmological lepton asymmetry, primordial nucleosynthesis, and sterile neutrinos”**
K. Abazajian, N. F. Bell, G. M. Fuller and Y. Y. Y. Wong
submitted, Phys. Rev. D [arXiv:astro-ph/0410175]
4. **“Cosmology and the Halo Occupation Distribution from Small-Scale Galaxy Clustering in the Sloan Digital Sky Survey”**
K. Abazajian *et al.*
submitted, Astrophys. J. [arXiv:astro-ph/0408003]
5. **“The Second Data Release of the Sloan Digital Sky Survey”**
SDSS Collaboration [K. Abazajian *et al.*]
Astron. J. **128**, 502 (2004) [arXiv:astro-ph/0403325]
6. **“Cosmological parameters from SDSS and WMAP”**
M. Tegmark *et al.* [SDSS Collaboration]
Phys. Rev. D **69**, 103501 (2004) [arXiv:astro-ph/0310723]
7. **“The First Data Release of the Sloan Digital Sky Survey”**
SDSS Collaboration [K. Abazajian *et al.*]
Astron. J. **126**, 2081 (2003) [arXiv:astro-ph/0305492]
8. **“Neutrino mass and dark energy from weak lensing”**
K. N. Abazajian and S. Dodelson
Phys. Rev. Lett. **91**, 041301 (2003) [arXiv:astro-ph/0212216]

PUBLICATIONS (CONTINUED) _____

9. “**Telling three from four neutrinos with cosmology**”
K. N. Abazajian
Astropart. Phys. **19**, 303 (2003) [arXiv:astro-ph/0205238]
10. “**Bulk QCD thermodynamics and sterile neutrino dark matter**”
K. N. Abazajian and G. M. Fuller
Phys. Rev. D **66**, 023526 (2002) [arXiv:astro-ph/0204293]
11. “**Stringent constraints on cosmological neutrino antineutrino asymmetries from synchronized flavor transformation**”
K. N. Abazajian, J. F. Beacom and N. F. Bell
Phys. Rev. D **66**, 013008 (2002) [arXiv:astro-ph/0203442]
12. “**SDSS J124602.54+011318.8: A Highly Luminous Optical Transient at z=0.385**”
D. E. Vanden Berk *et al.* [SDSS Collaboration]
Astrophys. J. **576**, 673 (2002) [arXiv:astro-ph/0111054]
13. “**Direct detection of warm dark matter in the X-ray**”
K. Abazajian, G. M. Fuller and W. H. Tucker
Astrophys. J. **562**, 593 (2001) [arXiv:astro-ph/0106002]
14. “**Testing the cosmic coincidence problem and the nature of dark energy**”
N. Dalal, K. Abazajian, E. Jenkins and A. V. Manohar
Phys. Rev. Lett. **87**, 141302 (2001) [arXiv:astro-ph/0105317]
15. “**Sterile neutrino hot, warm, and cold dark matter**”
K. Abazajian, G. M. Fuller and M. Patel
Phys. Rev. D **64**, 023501 (2001) [arXiv:astro-ph/0101524]
16. “**The cosmological bulk neutrino catastrophe**”
K. Abazajian, G. M. Fuller and M. Patel
Phys. Rev. Lett. **90**, 061301 (2003) [arXiv:hep-ph/0011048]
17. “**New connection between central engine weak physics and the dynamics of gamma-ray burst fireballs**”
J. Pruet, K. Abazajian and G. M. Fuller
Phys. Rev. D **64**, 063002 (2001) [arXiv:astro-ph/0009144]

PUBLICATIONS (CONTINUED) _____

18. “**Can a large neutron excess help solve the baryon loading problem in gamma ray burst fireballs?**”
G. M. Fuller, J. Pruet and K. Abazajian
Phys. Rev. Lett. **85**, 2673 (2000) [arXiv:astro-ph/0004313]
19. “**The increase to the primordial He-4 yield in the two-doublet four-neutrino mixing scheme**”
K. Abazajian, G. M. Fuller and X. Shi
Phys. Rev. D **62**, 093003 (2000) [arXiv:astro-ph/9908081]
20. “**Neutrino-mixing-generated lepton asymmetry and the primordial He-4 abundance**”
X. d. Shi, G. M. Fuller and K. Abazajian
Phys. Rev. D **60**, 063002 (1999) [arXiv:astro-ph/9905259]

CONFERENCE PROCEEDINGS _____

1. “**The cosmological energy density of neutrinos from oscillation measurements**”
K. Abazajian
arXiv:hep-ph/0312163
Proceedings of NuFact 03, 5th International Workshop on Neutrino Factories & Superbeams, 5-11 June 2003, Columbia University, New York
2. “**Gamma-ray burst afterglows**”
K. Abazajian
Proceedings of Les Rencontres de Physique de la Vallée d' Aoste, La Thuile, Italy, 3-9 March, 2002
3. “**Active-sterile neutrino mixing in the early universe and primordial nucleosynthesis**”
K. Abazajian, X. d. Shi and G. M. Fuller
arXiv:astro-ph/9904052
Proceedings of American Physical Society (APS) Meeting of the Division of Particles and Fields (DPF 99), Los Angeles, CA, 5-9 Jan 1999
4. “**Are gamma-ray bursts signals of supermassive black hole formation?**”
K. Abazajian, G. M. Fuller and X. Shi
arXiv:astro-ph/9812287
Proceedings of International Conference on the Activity of Galaxies and Related Phenomena, Byurakan, Armenia, 17- 21 Aug 1998
5. “**Baryon/anti-baryon inhomogeneity and big bang nucleosynthesis**”
K. Abazajian and G. M. Fuller
arXiv:astro-ph/9812288
Proceedings of 3rd International Symposium on Sources and Detection of Dark Matter in the Universe (DM 98), Santa Monica, CA, 18-20 Feb 1998

COLLOQUIA AND INVITED CONFERENCE PRESENTATIONS

Cosmology and Galaxy Formation from All-Scale Galaxy Clustering in the Sloan
Digital Sky Survey
Institute of Astronomy, ETH Zürich, Switzerland, October 2004

Neutrino Clustering in Cold Dark Matter Halos
Workshop on Neutrinos and the Early Universe, ECT*, Trento, Italy, October
2004

Cosmology from the Deeply Nonlinear Regime: the SDSS Two-point Correlation
Function
Santa Fe Cosmology Workshop, July 2004

The Galaxy Dark Matter Halo Occupation, Two-point Correlation, and Cosmology
Aspen Winter 2003 Conference on Astrophysics, January 2004

Neutrino Cosmology
Physics Colloquium, New Mexico State University, October 2003

Cosmological Measurements of Neutrino Parameters
Weak Interactions and Neutrinos, Lake Geneva, Wisconsin, October 2003

Precision Cosmological Measurement of Neutrino Mass
Eleventh Lomonosov Conference on Elementary Particle Physics, Moscow
State University, August 2003

Massive Neutrinos in the New Cosmology
Joint Experimental and Theoretical Physics Seminar, Fermi National Accelerator Laboratory, April 2003

Sterile Neutrinos in Astrophysics and Cosmology
Neutrino Conference, Kavli Institute for Theoretical Physics, March 2003

Neutrino Cosmology
Aspen Winter 2003 Conference on Particle Physics, January 2003

Telling Three from Four Neutrinos with Cosmology
COSMO-02, International Workshop on Particle Physics and the Early Universe, Chicago, September 2002

Gamma-Ray Burst Afterglows
Les Rencontres de Physique de la Vallée d'Aoste, La Thuile, Italy, March 2002

Are Gamma-Ray Bursts Signals of Supermassive Black Hole Formation?
International Conference on the Activity of Galaxies and Related Phenomena,
Byurakan, Armenia, August 1998

REFERENCES _____

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